

# SEQUENCE LISTING

<110> Miller, Duane D.  
 Tigyi, Gabor  
 Dalton, James T.  
 Sardar, Vineet M.  
 Elrod, Don B.  
 Xu, Huiping  
 Baker, Daniel L.  
 Wang, Dean  
 Liliom, Karoly  
 Fischer, David J.  
 Virag, Tamas  
 Nusser, Nora

<120> LPA RECEPTOR AGONISTS AND ANTAGONISTS AND METHODS OF  
 USE

<130> 20609/181

<140>

<141>

<150> 60/190,370

<151> 2000-03-17

<160> 26

<170> PatentIn Ver. 2.1

<210> 1

<211> 1095

<212> DNA

<213> Homo sapiens

<400> 1

```

atggctgcca tctctacttc catccctgta atttcacagc cccagttcac agccatgaat 60
gaaccacagt gcttctacaa cgagtcatt gccttctttt ataaccgaag tggaaagcat 120
cttgccacag aatggaacac agtcagcaag ctggtgatgg gacttggaat cactgtttgt 180
atcttcatca tgttgccaa cctattgggc atgggtggcaa tctatgtcaa ccgcgccttc 240
cattttccta tttattacct aatggcta atggctgctg cagacttctt tgctgggttg 300
gcctacttct atctcatgtt caacacagga cccaatactc ggagactgac tgttagcaca 360
tggctcctgc gtcaggcct cattgacacc agcctgacgg catctgtggc caacttactg 420
gctattgcaa tcgagaggca cattacggtt ttccgcatgc agtccacac acggatgagc 480
aaccggcggg tagtggtggt cattgtggtc atctggacta tggccatcgt tatgggtgct 540
ataccagtg tgggctggaa ctgtatctgt gatattgaaa attgttcaa catggcacc 600
ctctacagtg actcttactt agtcttctgg gccattttca acttggtgac ctttgtggtg 660
atgggtggttc tctatgctca catctttggc tatgttcgcc agaggactat gagaatgtct 720

```

cgccatagtt ctggaccccg gcggaatcgg gataccatga tgagtcttct gaagactgtg 780  
 gtcattgtgc ttggggcctt tatcatctgc tggactcctg gattggtttt gttacttcta 840  
 gacgtgtgct gtccacagtg cgacgtgctg gcctatgaga aattcttcct tctccttgct 900  
 gaattcaact ctgccatgaa ccccatcatt tactcctacc gcgacaaaga aatgagcgcc 960  
 accttaggc agatcctctg ctgccagcgc agtgagaacc ccaccggccc cacagaaagc 1020  
 tcagaccgct cggcttcctc cctcaaccac accatcttgg ctggagttca cagcaatgac 1080  
 cactctgtgg tttag 1095

<210> 2  
 <211> 364  
 <212> PRT  
 <213> Homo sapiens

<400> 2  
 Met Ala Ala Ile Ser Thr Ser Ile Pro Val Ile Ser Gln Pro Gln Phe  
 1 5 10 15  
 Thr Ala Met Asn Glu Pro Gln Cys Phe Tyr Asn Glu Ser Ile Ala Phe  
 20 25 30  
 Phe Tyr Asn Arg Ser Gly Lys His Leu Ala Thr Glu Trp Asn Thr Val  
 35 40 45  
 Ser Lys Leu Val Met Gly Leu Gly Ile Thr Val Cys Ile Phe Ile Met  
 50 55 60  
 Leu Ala Asn Leu Leu Val Met Val Ala Ile Tyr Val Asn Arg Arg Phe  
 65 70 75 80  
 His Phe Pro Ile Tyr Tyr Leu Met Ala Asn Leu Ala Ala Ala Asp Phe  
 85 90 95  
 Phe Ala Gly Leu Ala Tyr Phe Tyr Leu Met Phe Asn Thr Gly Pro Asn  
 100 105 110  
 Thr Arg Arg Leu Thr Val Ser Thr Trp Leu Leu Arg Gln Gly Leu Ile  
 115 120 125  
 Asp Thr Ser Leu Thr Ala Ser Val Ala Asn Leu Leu Ala Ile Ala Ile  
 130 135 140  
 Glu Arg His Ile Thr Val Phe Arg Met Gln Leu His Thr Arg Met Ser  
 145 150 155 160  
 Asn Arg Arg Val Val Val Val Ile Val Val Ile Trp Thr Met Ala Ile  
 165 170 175

Val Met Gly Ala Ile Pro Ser Val Gly Trp Asn Cys Ile Cys Asp Ile  
180 185 190

Glu Asn Cys Ser Asn Met Ala Pro Leu Tyr Ser Asp Ser Tyr Leu Val  
195 200 205

Phe Trp Ala Ile Phe Asn Leu Val Thr Phe Val Val Met Val Val Leu  
210 215 220

Tyr Ala His Ile Phe Gly Tyr Val Arg Gln Arg Thr Met Arg Met Ser  
225 230 235 240

Arg His Ser Ser Gly Pro Arg Arg Asn Arg Asp Thr Met Met Ser Leu  
245 250 255

Leu Lys Thr Val Val Ile Val Leu Gly Ala Phe Ile Ile Cys Trp Thr  
260 265 270

Pro Gly Leu Val Leu Leu Leu Leu Asp Val Cys Cys Pro Gln Cys Asp  
275 280 285

Val Leu Ala Tyr Glu Lys Phe Phe Leu Leu Leu Ala Glu Phe Asn Ser  
290 295 300

Ala Met Asn Pro Ile Ile Tyr Ser Tyr Arg Asp Lys Glu Met Ser Ala  
305 310 315 320

Thr Phe Arg Gln Ile Leu Cys Cys Gln Arg Ser Glu Asn Pro Thr Gly  
325 330 335

Pro Thr Glu Ser Ser Asp Arg Ser Ala Ser Ser Leu Asn His Thr Ile  
340 345 350

Leu Ala Gly Val His Ser Asn Asp His Ser Val Val  
355 360

<210> 3

<211> 1056

<212> DNA

<213> Homo sapiens

<400> 3

atgggtcatca tgggcccagtg ctactacaac gagaccatcg gcttcttcta taacaacagt 60  
ggcaaagagc tcagctccca ctggcgcccc aaggatgtgg tcgtggtggc actggggctg 120  
accgtcagcg tgctggtgct gctgaccaat ctgctggtca tagcagccat cgcctccaac 180  
cgccgcttcc accagcccat ctactacctg ctcggcaatc tggccgcggc tgacctcttc 240  
gcggggcgtgg cctacctctt cctcatgttc cacactggtc cccgcacagc ccgactttca 300

```

cttgagggct ggttcctgcg gcagggcttg ctggacacaa gcctcactgc gtcggtggcc 360
acactgctgg ccatcgccgt ggagcggcac cgcagtgtga tggccgtgca gctgcacagc 420
cgctgcccc gtggccgctg ggtcatgctc attgtggcg tgtgggtggc tgccctgggc 480
ctggggctgc tgccctgcca ctccctggcac tgcctctgtg cctgggaccg ctgctcacgc 540
atggcacccc tgctcagccg ctccctatttg gccgtctggg ctctgtcgag cctgcttgtc 600
ttcctgctca tgggtggctgt gtacacccgc attttcttct acgtgcggcg gcgagtgcag 660
cgcatggcag agcatgtcag ctgccacccc cgctaccgag agaccacgct cagcctggtc 720
aagactgttg tcatcatcct gggggcggtt gtggtctgct ggacaccagg ccaggtggta 780
ctgctcctgg atggtttagg ctgtgagtc tgcaatgtcc tggctgtaga aaagtacttc 840
ctactgttgg ccgaggccaa ctccactggc aatgctgctg tgtactcttg ccgagatgct 900
gagatgcgcc gcaccttcgg ccgccttctc tgctgcgcgt gcctccgcca gtccacccgc 960
gagtcgtgcc actatacatc ctctgcccag ggaggtgcca gcactcgcat catgcttccc 1020
gagaacggcc acccactgat ggactccacc cttagg 1056

```

<210> 4

<211> 351

<212> PRT

<213> Homo sapiens

<400> 4

```

Met Val Ile Met Gly Gln Cys Tyr Tyr Asn Glu Thr Ile Gly Phe Phe
  1                   5                   10                   15

```

```

Tyr Asn Asn Ser Gly Lys Glu Leu Ser Ser His Trp Arg Pro Lys Asp
          20                   25                   30

```

```

Val Val Val Val Ala Leu Gly Leu Thr Val Ser Val Leu Val Leu Leu
          35                   40                   45

```

```

Thr Asn Leu Leu Val Ile Ala Ala Ile Ala Ser Asn Arg Arg Phe His
          50                   55                   60

```

```

Gln Pro Ile Tyr Tyr Leu Leu Gly Asn Leu Ala Ala Ala Asp Leu Phe
          65                   70                   75                   80

```

```

Ala Gly Val Ala Tyr Leu Phe Leu Met Phe His Thr Gly Pro Arg Thr
          85                   90                   95

```

```

Ala Arg Leu Ser Leu Glu Gly Trp Phe Leu Arg Gln Gly Leu Leu Asp
          100                   105                   110

```

```

Thr Ser Leu Thr Ala Ser Val Ala Thr Leu Leu Ala Ile Ala Val Glu
          115                   120                   125

```

```

Arg His Arg Ser Val Met Ala Val Gln Leu His Ser Arg Leu Pro Arg
          130                   135                   140

```

Gly Arg Val Val Met Leu Ile Val Gly Val Trp Val Ala Ala Leu Gly  
145 150 155 160

Leu Gly Leu Leu Pro Ala His Ser Trp His Cys Leu Cys Ala Leu Asp  
165 170 175

Arg Cys Ser Arg Met Ala Pro Leu Leu Ser Arg Ser Tyr Leu Ala Val  
180 185 190

Trp Ala Leu Ser Ser Leu Leu Val Phe Leu Leu Met Val Ala Val Tyr  
195 200 205

Thr Arg Ile Phe Phe Tyr Val Arg Arg Arg Val Gln Arg Met Ala Glu  
210 215 220

His Val Ser Cys His Pro Arg Tyr Arg Glu Thr Thr Leu Ser Leu Val  
225 230 235 240

Lys Thr Val Val Ile Ile Leu Gly Ala Phe Val Val Cys Trp Thr Pro  
245 250 255

Gly Gln Val Val Leu Leu Leu Asp Gly Leu Gly Cys Glu Ser Cys Asn  
260 265 270

Val Leu Ala Val Glu Lys Tyr Phe Leu Leu Leu Ala Glu Ala Asn Ser  
275 280 285

Leu Val Asn Ala Ala Val Tyr Ser Cys Arg Asp Ala Glu Met Arg Arg  
290 295 300

Thr Phe Arg Arg Leu Leu Cys Cys Ala Cys Leu Arg Gln Ser Thr Arg  
305 310 315 320

Glu Ser Val His Tyr Thr Ser Ser Ala Gln Gly Gly Ala Ser Thr Arg  
325 330 335

Ile Met Leu Pro Glu Asn Gly His Pro Leu Met Asp Ser Thr Leu  
340 345 350

<210> 5

<211> 1062

<212> DNA

<213> Homo sapiens

<400> 5

atgaatgagt gtcactatga caagcacatg gacttttttt ataataggag caacactgat 60  
actgtcgatg actggacagg aacaaagctt gtgattgttt tgtgtgttgg gacgtttttc 120

Met Ser Ile Met Arg Met Arg Val His Ser Asn Leu Thr Lys Lys Arg  
 130 135 140

Val Thr Leu Leu Ile Leu Leu Val Trp Ala Ile Ala Ile Phe Met Gly  
 145 150 155 160

Ala Val Pro Thr Leu Gly Trp Asn Cys Leu Cys Asn Ile Ser Ala Cys  
 165 170 175

Ser Ser Leu Ala Pro Ile Tyr Ser Arg Ser Tyr Leu Val Phe Trp Thr  
 180 185 190

Val Ser Asn Leu Met Ala Phe Leu Ile Met Val Val Val Tyr Leu Arg  
 195 200 205

Ile Tyr Val Tyr Val Lys Arg Lys Thr Asn Val Leu Ser Pro His Thr  
 210 215 220

Ser Gly Ser Ile Ser Arg Arg Arg Thr Pro Met Lys Leu Met Lys Thr  
 225 230 235 240

Val Met Thr Val Leu Gly Ala Phe Val Val Cys Trp Thr Pro Gly Leu  
 245 250 255

Val Val Leu Leu Leu Asp Gly Leu Asn Cys Arg Gln Cys Gly Val Gln  
 260 265 270

His Val Lys Arg Trp Phe Leu Leu Leu Ala Leu Leu Asn Ser Val Val  
 275 280 285

Asn Pro Ile Ile Tyr Ser Tyr Lys Asp Glu Asp Met Tyr Gly Thr Met  
 290 295 300

Lys Lys Met Ile Cys Cys Phe Ser Gln Glu Asn Pro Glu Arg Arg Pro  
 305 310 315 320

Ser Arg Ile Pro Ser Thr Val Leu Ser Arg Ser Asp Thr Gly Ser Gln  
 325 330 335

Tyr Ile Glu Asp Ser Ile Ser Gln Gly Ala Val Cys Asn Lys Ser Thr  
 340 345 350

Ser

<210> 7

<211> 1260

<212> DNA

<213> Homo sapiens

<400> 7

atggtcttct cggcagtgtt gactgcgttc cataccggga catccaacac aacatttgtc 60  
gtgtatgaaa acacctacat gaatattaca ctccctccac cattccagca tccctgacctc 120  
agtccattgc ttagatatag ttttgaaacc atggctccca ctggtttgag ttccttgacc 180  
gtgaatagta cagctgtgcc cacaacacca gcagcattta agagcctaaa cttgcctctt 240  
cagatcaccc tttctgctat aatgatattc attctgtttg tgtcttttct tgggaacttg 300  
gttgtttgcc tcatggttta ccaaaaagct gccatgaggt ctgcaattaa catcctcctt 360  
gccagcctag cttttgcaga catgttgctt gcagtgtctga acatgccctt tggcctggta 420  
actattctta ctaccgatg gatttttggg aaattcttct gtagggatc tgctatgttt 480  
ttctggttat ttgtgataga aggagtagcc atcctgtctc tcattagcat agataggttc 540  
cttattatag tccagaggca ggataagcta aacccatata gagctaaggt tctgattgca 600  
gtttcttggg caacttcctt ttgtgtagct tttcctttag ccgtaggaaa ccccgacctg 660  
cagatacctt cccgagctcc ccagtgtgtg tttgggtaca caaccaatcc aggctaccag 720  
gcttatgtga ttttgatttc tctcatttct ttcttcatac ctttcctggg aatactgtac 780  
tcatttatgg gcatactcaa cacccttcgg cacaatgcct tgaggatcca tagctaccct 840  
gaaggtatat gcctcagcca ggccagcaaa ctgggtctca tgagtctgca gagacctttc 900  
cagatgagca ttgacatggg ctttaaaaca cgtgccttca ccactatttt gattctcttt 960  
gctgtcttca ttgtctgctg ggccccattc accacttaca gccttgtggc aacattcagt 1020  
aagcactttt actatcagca caactttttt gagattagca cctggctact gtggctctgc 1080  
tacctcaagt ctgcattgaa tccgctgata tactactgga ggattaagaa attccatgat 1140  
gcttgacctg acatgatgcc taagtccttc aagtttttgc cgcagctccc tgggtcacaca 1200  
aagcgacgga tacgtcctag tgctgtctat gtgtgtggg aacatcggac ggtgggtgtga 1260

<210> 8

<211> 419

<212> PRT

<213> Homo sapiens

<400> 8

Met Val Phe Ser Ala Val Leu Thr Ala Phe His Thr Gly Thr Ser Asn  
1 5 10 15  
Thr Thr Phe Val Val Tyr Glu Asn Thr Tyr Met Asn Ile Thr Leu Pro  
20 25 30  
Pro Pro Phe Gln His Pro Asp Leu Ser Pro Leu Leu Arg Tyr Ser Phe  
35 40 45  
Glu Thr Met Ala Pro Thr Gly Leu Ser Ser Leu Thr Val Asn Ser Thr  
50 55 60  
Ala Val Pro Thr Thr Pro Ala Ala Phe Lys Ser Leu Asn Leu Pro Leu  
65 70 75 80

Gln Ile Thr Leu Ser Ala Ile Met Ile Phe Ile Leu Phe Val Ser Phe  
 85 90 95  
 Leu Gly Asn Leu Val Val Cys Leu Met Val Tyr Gln Lys Ala Ala Met  
 100 105 110  
 Arg Ser Ala Ile Asn Ile Leu Leu Ala Ser Leu Ala Phe Ala Asp Met  
 115 120 125  
 Leu Leu Ala Val Leu Asn Met Pro Phe Ala Leu Val Thr Ile Leu Thr  
 130 135 140  
 Thr Arg Trp Ile Phe Gly Lys Phe Phe Cys Arg Val Ser Ala Met Phe  
 145 150 155 160  
 Phe Trp Leu Phe Val Ile Glu Gly Val Ala Ile Leu Leu Ile Ile Ser  
 165 170 175  
 Ile Asp Arg Phe Leu Ile Ile Val Gln Arg Gln Asp Lys Leu Asn Pro  
 180 185 190  
 Tyr Arg Ala Lys Val Leu Ile Ala Val Ser Trp Ala Thr Ser Phe Cys  
 195 200 205  
 Val Ala Phe Pro Leu Ala Val Gly Asn Pro Asp Leu Gln Ile Pro Ser  
 210 215 220  
 Arg Ala Pro Gln Cys Val Phe Gly Tyr Thr Thr Asn Pro Gly Tyr Gln  
 225 230 235 240  
 Ala Tyr Val Ile Leu Ile Ser Leu Ile Ser Phe Phe Ile Pro Phe Leu  
 245 250 255  
 Val Ile Leu Tyr Ser Phe Met Gly Ile Leu Asn Thr Leu Arg His Asn  
 260 265 270  
 Ala Leu Arg Ile His Ser Tyr Pro Glu Gly Ile Cys Leu Ser Gln Ala  
 275 280 285  
 Ser Lys Leu Gly Leu Met Ser Leu Gln Arg Pro Phe Gln Met Ser Ile  
 290 295 300  
 Asp Met Gly Phe Lys Thr Arg Ala Phe Thr Thr Ile Leu Ile Leu Phe  
 305 310 315 320  
 Ala Val Phe Ile Val Cys Trp Ala Pro Phe Thr Thr Tyr Ser Leu Val  
 325 330 335



Ala Thr Phe Ser Lys His Phe Tyr Tyr Gln His Asn Phe Phe Glu Ile  
 340 345 350

Ser Thr Trp Leu Leu Trp Leu Cys Tyr Leu Lys Ser Ala Leu Asn Pro  
 355 360 365

Leu Ile Tyr Tyr Trp Arg Ile Lys Lys Phe His Asp Ala Cys Leu Asp  
 370 375 380

Met Met Pro Lys Ser Phe Lys Phe Leu Pro Gln Leu Pro Gly His Thr  
 385 390 395 400

Lys Arg Arg Ile Arg Pro Ser Ala Val Tyr Val Cys Gly Glu His Arg  
 405 410 415

Thr Val Val

<210> 9  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: primer,  
 forward EDG-1

<400> 9  
 tcatcgtccg gcattacaac ta 22

<210> 10  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: primer,  
 reverse EDG-1

<400> 10  
 gagtgagctt gtaggtggtg 20

<210> 11  
 <211> 21  
 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer,  
forward EDG-2

<400> 11

agatctgacc agccgactca c

21

<210> 12

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer,  
reverse EDG-2

<400> 12

gttggccatc aagtaataaa ta

22

<210> 13

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer,  
forward EDG-3

<400> 13

cttggtcatc tgcagcttca tc

22

<210> 14

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer,  
reverse EDG-3

<400> 14

tgctgatgca gaaggcaatg ta

22

<210> 15  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer,  
forward EDG-4

<400> 15  
ctgctcagcc gctcctatTT g

21

<210> 16  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer,  
reverse EDG-4

<400> 16  
aggagcaccc acaagtcacT ag

22

<210> 17  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer,  
forward EDG-5

<400> 17  
atgggcagct tgtactcgga g

21

<210> 18  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer,  
reverse EDG-5

<400> 18  
cagccagcag acgataaaga c 21

<210> 19  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220> .  
<223> Description of Artificial Sequence: primer,  
forward EDG-6

<400> 19  
tgaacatcac gctgagtgac ct 22

<210> 20  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer,  
reverse EDG-6

<400> 20  
gatcatcagc accgtcttca gc 22

<210> 21  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: primer,  
forward EDG-7

<400> 21  
agcaacactg atactgtcga tg 22

<210> 22  
<211> 22  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer,  
reverse EDG-7

<400> 22

gcatcctcat gattgacatg tg

22

<210> 23

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer,  
forward EDG-8

<400> 23

atctgtgcg tctatgcaag ga

22

<210> 24

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer,  
reverse EDG-8

<400> 24

ggtgtagatg ataggattca gca

23

<210> 25

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer,  
forward PSP24

<400> 25

ctgcatcatc gtgtaccaga g

21

<210> 26

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer,  
reverse PSP24

<400> 26

acgaactcta tgcaggcctc gc

22

acgaactcta tgcaggcctc gc



Creation date: 01-21-2004  
Indexing Officer: ADOWNING - ANTONIO DOWNING  
Team: OIPEBackFileIndexing  
Dossier: 09811838

Legal Date: 04-02-2001

| No. | Doccode | Number of pages |
|-----|---------|-----------------|
| 1   | CRFL    | 6               |

Total number of pages: 6

Remarks:

Order of re-scan issued on .....